US009574357B2

(12) **United States Patent**
Hulett et al.

(10) **Patent No.: US 9,574,357 B2**
(45) **Date of Patent: Feb. 21, 2017**

(54) **SCAFFOLD BRACKET**

(71) Applicant: **Apache Industrial Services**, Houston, TX (US)

(72) Inventors: **Burt Hulett**, League City, TX (US); **David Bretherton**, Humble, TX (US)

(73) Assignee: **Apache Industrial Services, Inc.**, Houston, TX (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/051,286**

(22) Filed: **Oct. 10, 2013**

(65) **Prior Publication Data**

US 2014/0339019 A1 Nov. 20, 2014

Related U.S. Application Data

(60) Provisional application No. 61/825,323, filed on May 20, 2013.

(51) **Int. Cl.**

E04G 5/06	(2006.01)
E04G 3/20	(2006.01)
E04G 7/32	(2006.01)
E04G 5/04	(2006.01)

(52) **U.S. Cl.**

CPC ***E04G 5/062*** (2013.01); ***E04G 3/20*** (2013.01); ***E04G 5/046*** (2013.01); ***E04G 7/32*** (2013.01); *Y10T 29/49826* (2015.01)

(58) **Field of Classification Search**

CPC E04G 5/04; E04G 5/045; E04G 5/046; E04G 5/048; E04G 5/062; E04G 3/20

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,403,751	A *	10/1968	Yoder	182/229
3,510,097	A *	5/1970	McCaleb	248/243
3,515,244	A *	6/1970	Weible	182/150
3,992,118	A	11/1976	Siegers	
4,039,264	A *	8/1977	Sharp	403/246
4,396,092	A *	8/1983	Thompson	182/38
4,493,578	A	1/1985	D'Alessio	
5,024,037	A	6/1991	Ono	
5,535,974	A	7/1996	Savitski	
5,865,410	A	2/1999	Horen	
5,961,240	A	10/1999	Bobrovniczky	
6,026,932	A	2/2000	Comp	
6,027,276	A	2/2000	Schworer	
6,722,471	B2	4/2004	Wolfe	
7,258,197	B1	8/2007	Wicks	
D567,964	S	4/2008	Lai	
8,393,439	B2	3/2013	Thacker	
2002/0027043	A1 *	3/2002	Wisler	182/82
2006/0163001	A1 *	7/2006	Pozell	182/82
2006/0243524	A1 *	11/2006	Jarrell	182/82
2007/0056799	A1 *	3/2007	Leidner	182/82

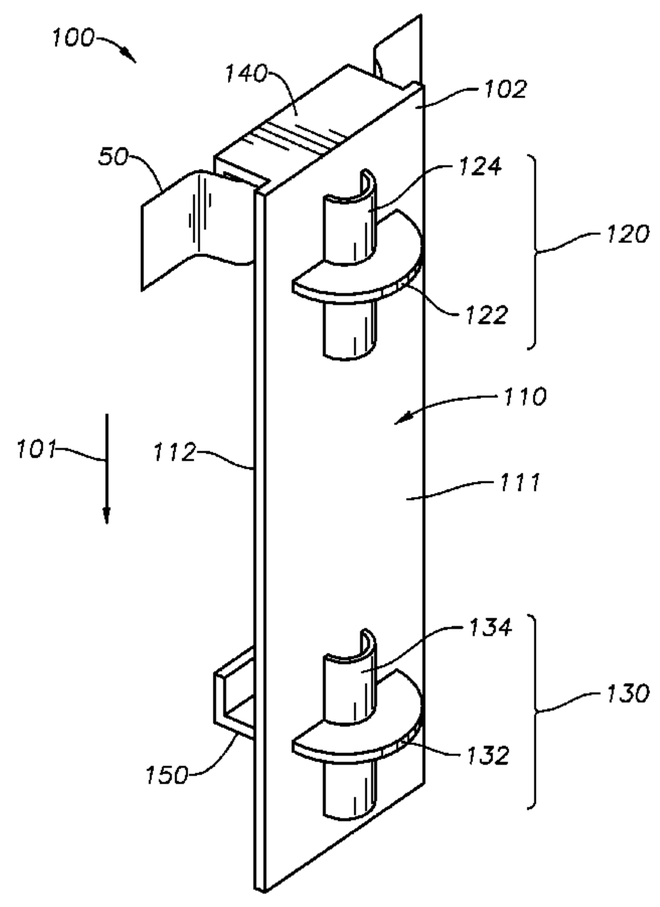
* cited by examiner

Primary Examiner — Colleen M Chavchavadze
(74) *Attorney, Agent, or Firm* — Pramudji Law Group, PLLC; Ari Pramudji

(57) **ABSTRACT**

Various implementations described herein are directed to a scaffold bracket. In one implementation, the scaffold bracket may include a mounting bracket having a first face and a second face opposite of the first face. The scaffold bracket may also include a first scaffolding node attached to the first face and configured to couple to a first member. The scaffold bracket may further include a second scaffolding node attached to the first face and configured to couple to a second member.

9 Claims, 9 Drawing Sheets



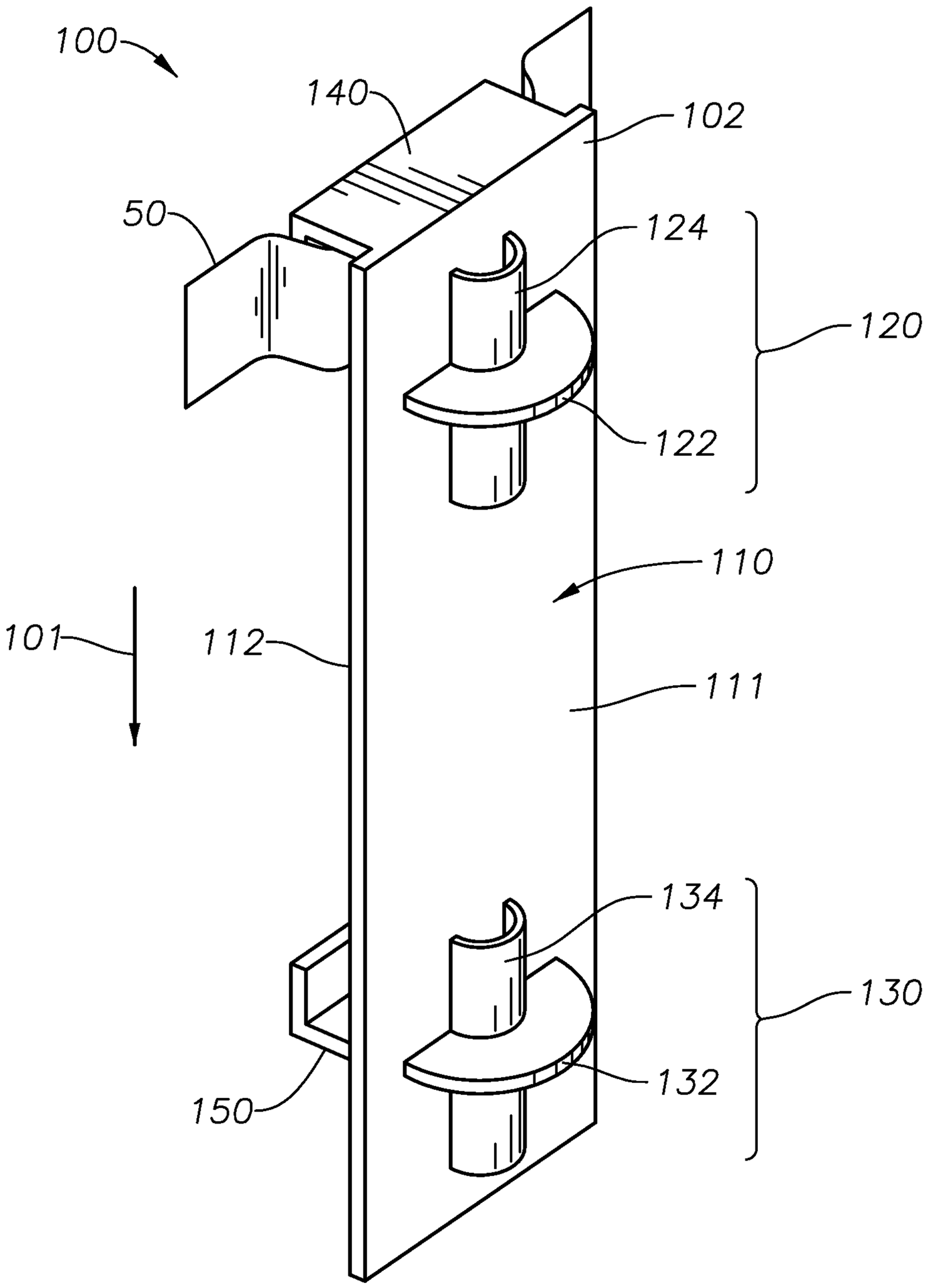


FIG. 1.1

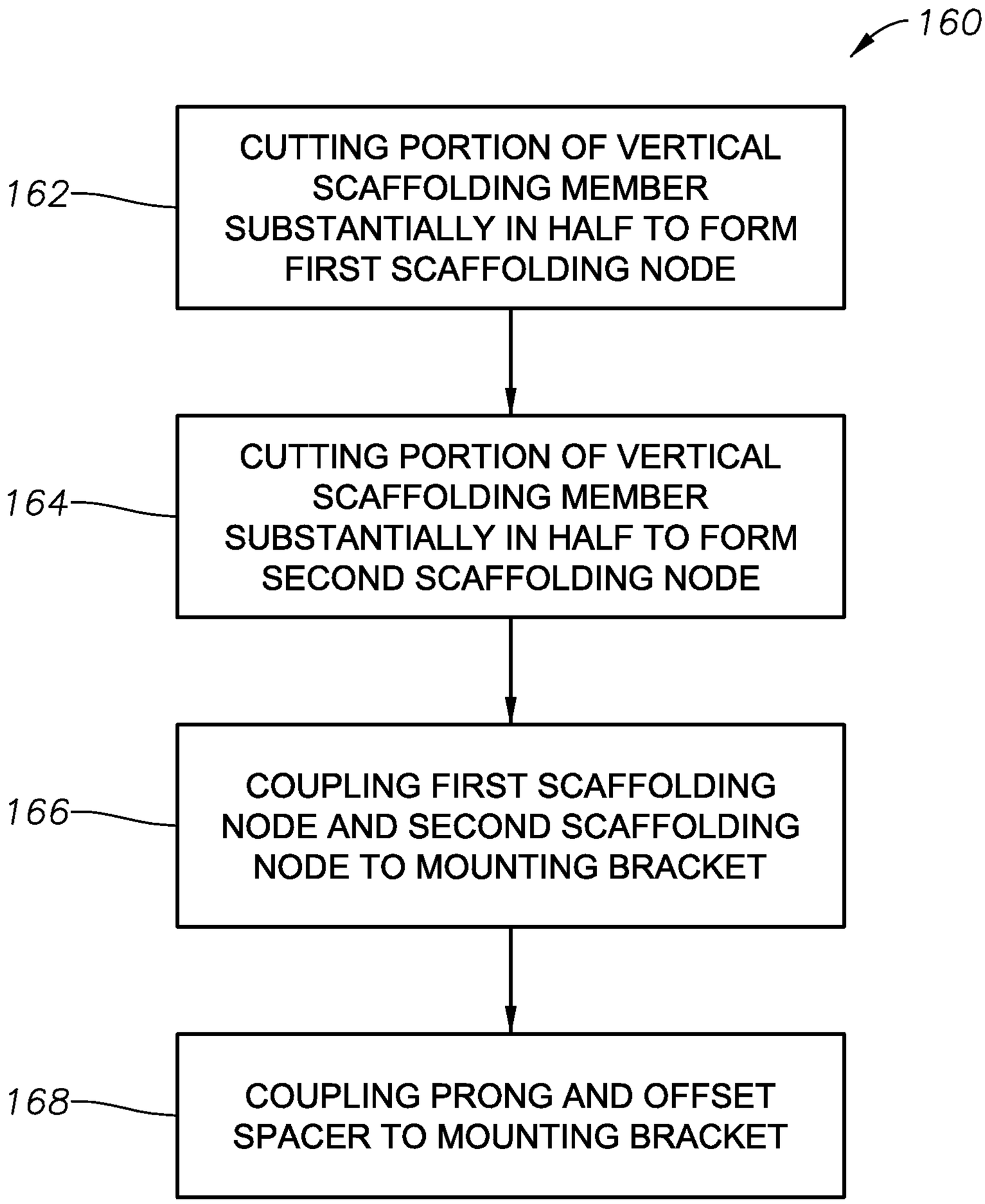

160
162
CUTTING PORTION OF VERTICAL SCAFFOLDING MEMBER SUBSTANTIALLY IN HALF TO FORM FIRST SCAFFOLDING NODE
164
CUTTING PORTION OF VERTICAL SCAFFOLDING MEMBER SUBSTANTIALLY IN HALF TO FORM SECOND SCAFFOLDING NODE
166
COUPLING FIRST SCAFFOLDING NODE AND SECOND SCAFFOLDING NODE TO MOUNTING BRACKET
168
COUPLING PRONG AND OFFSET SPACER TO MOUNTING BRACKET

FIG. 1.2

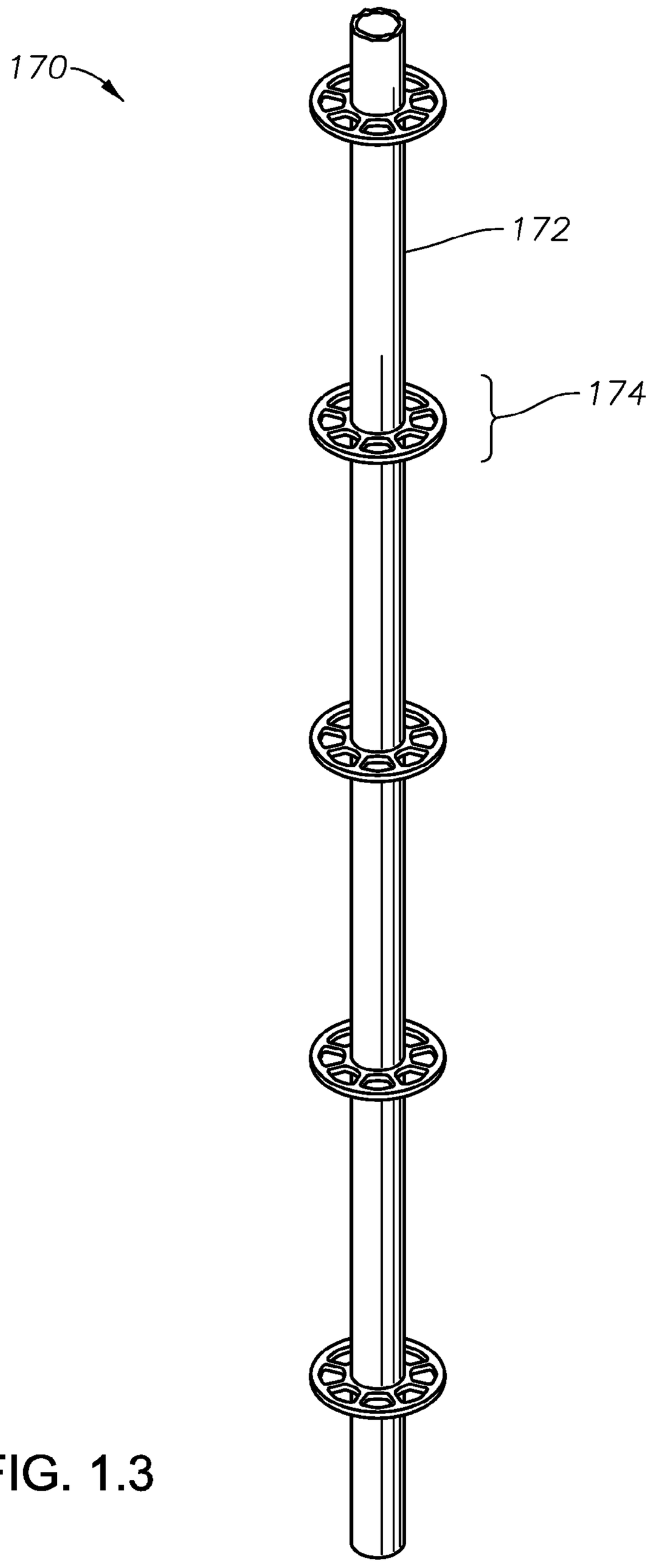


FIG. 1.3

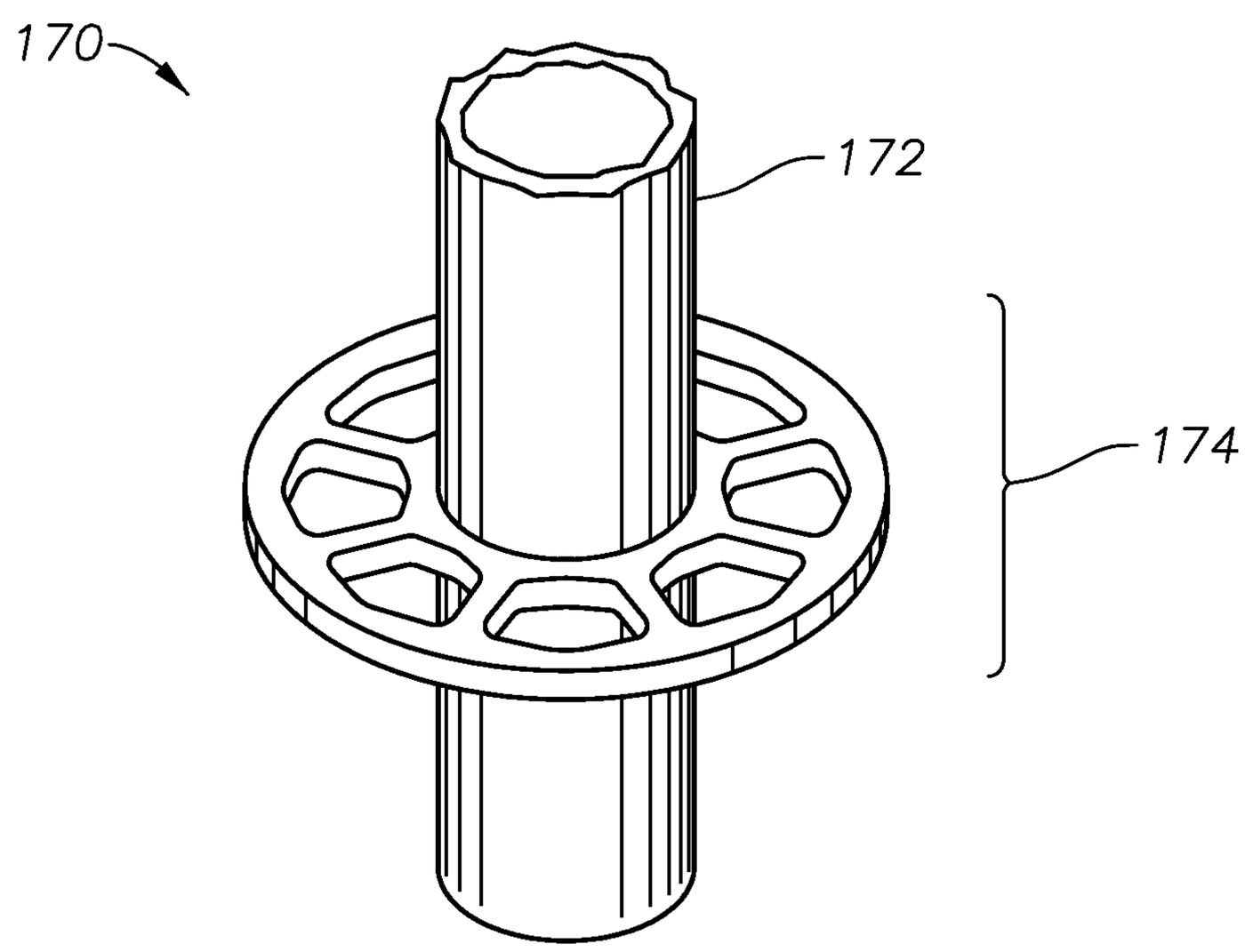


FIG. 1.4

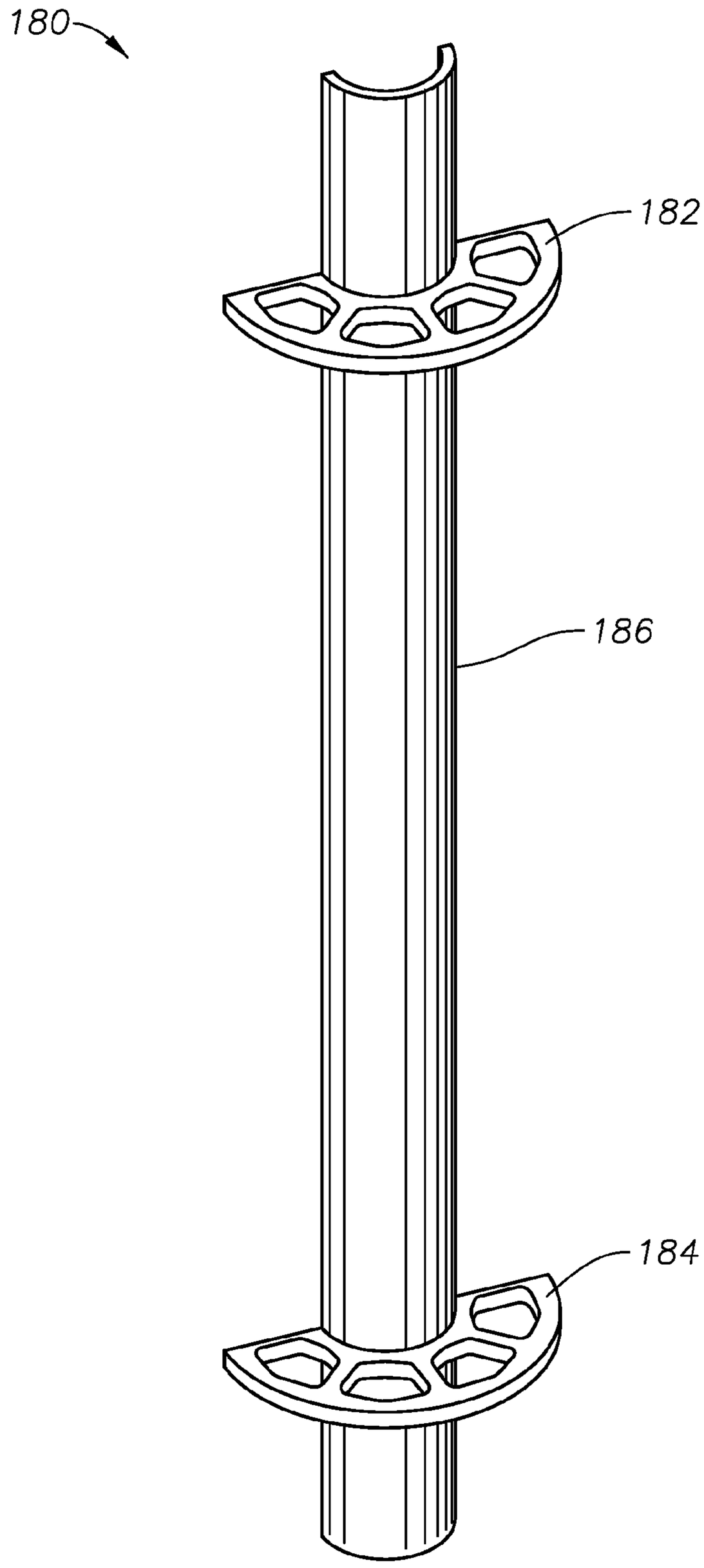


FIG. 1.5

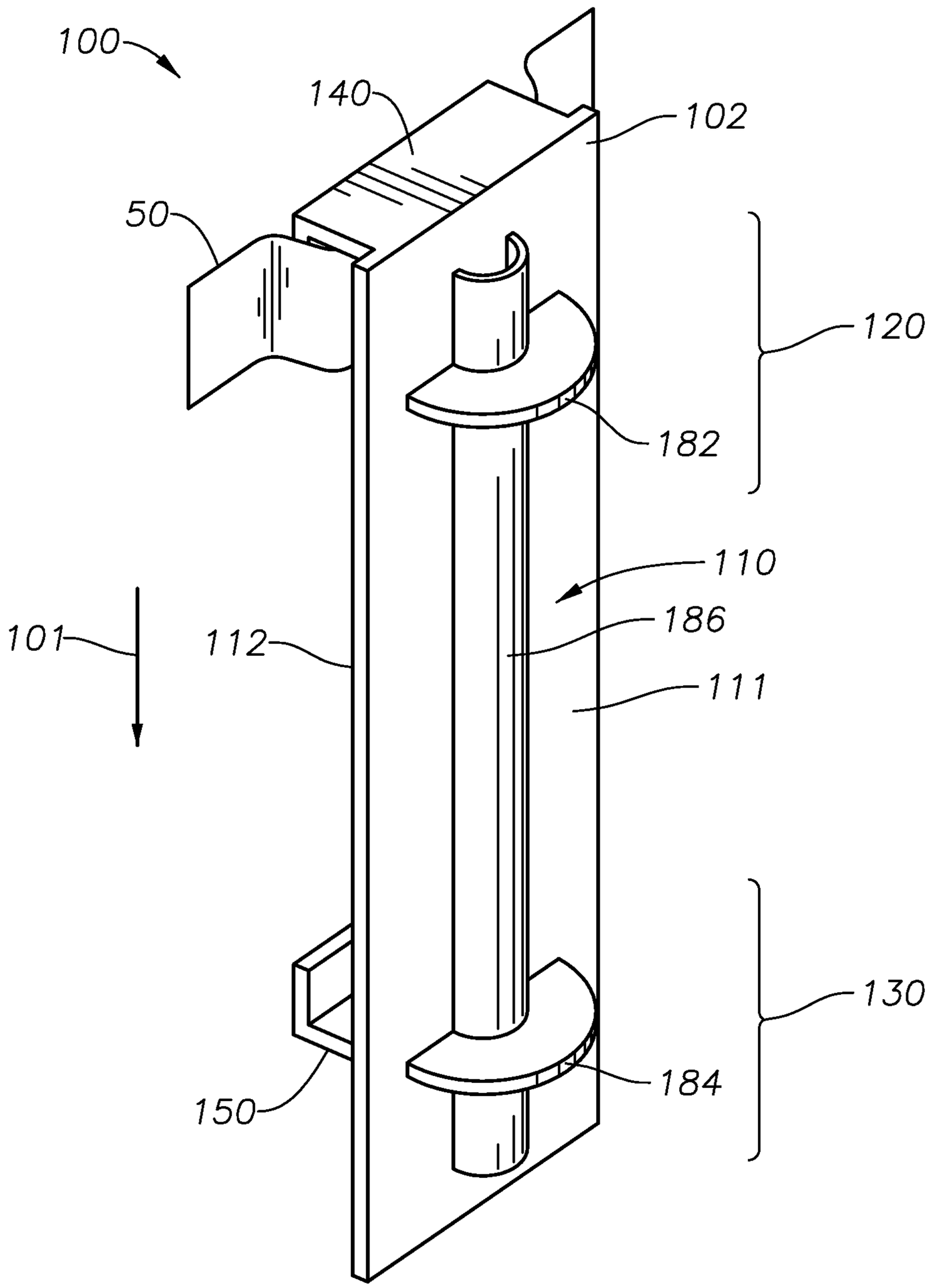


FIG. 1.6

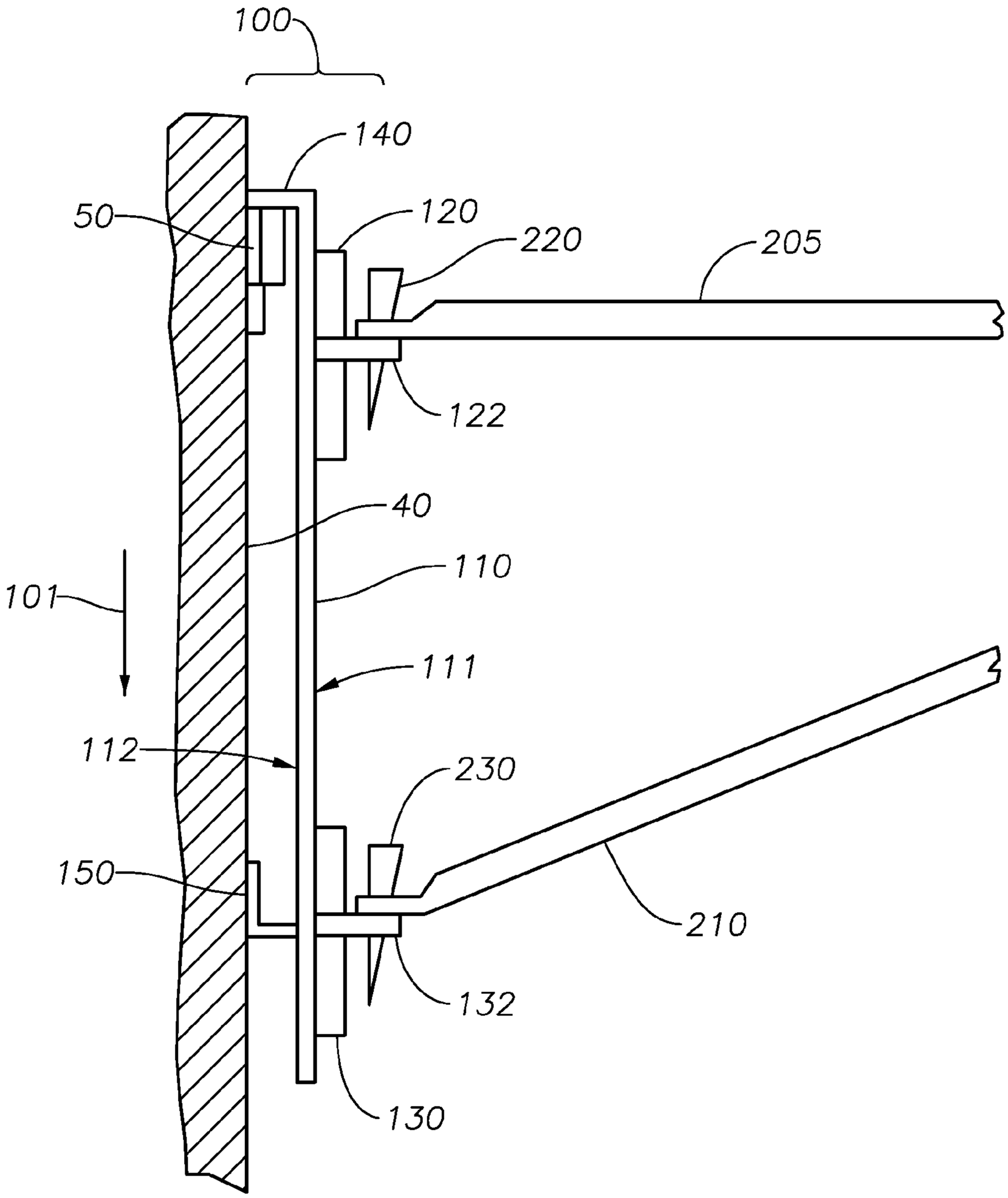


FIG. 2

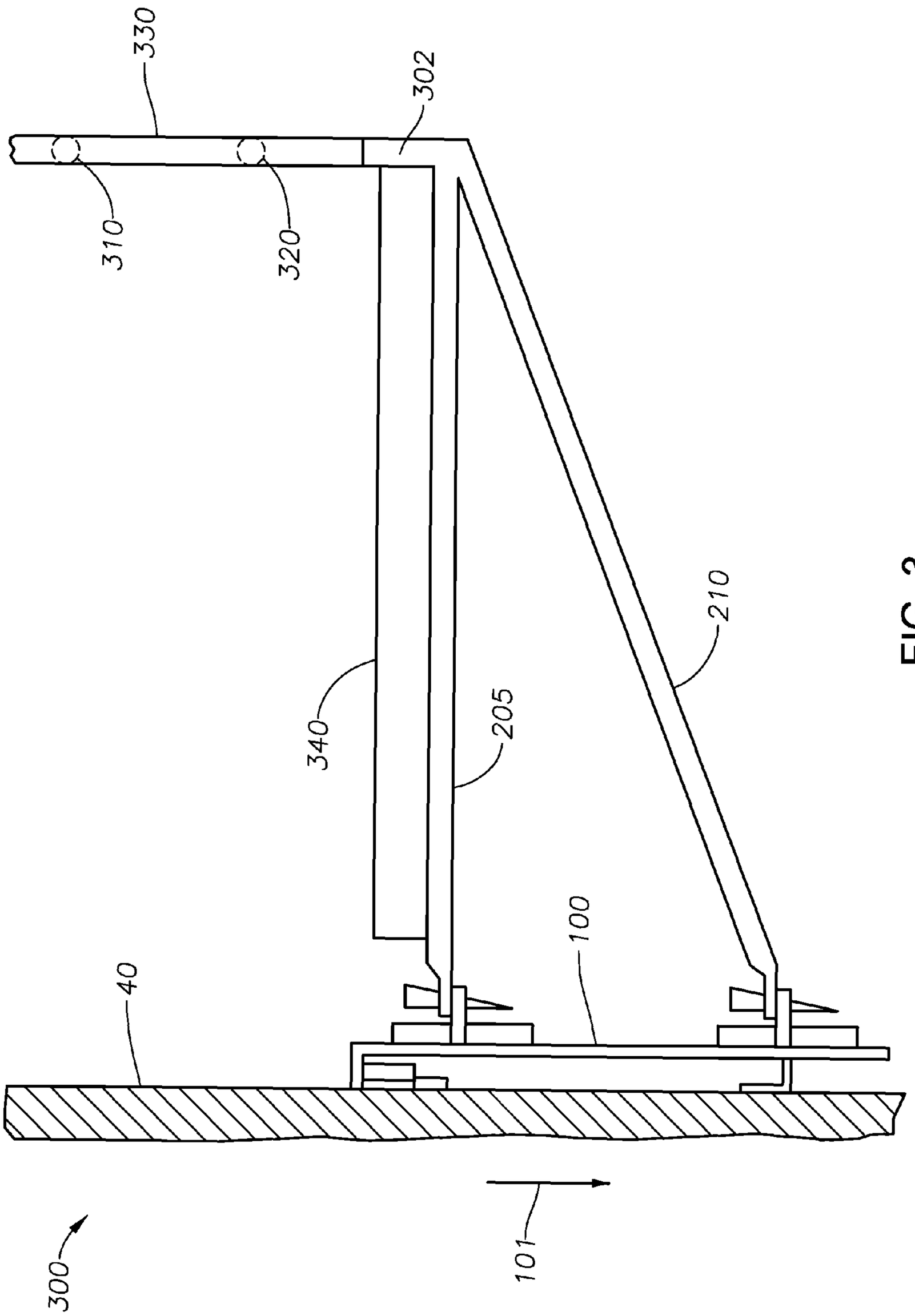


FIG. 3

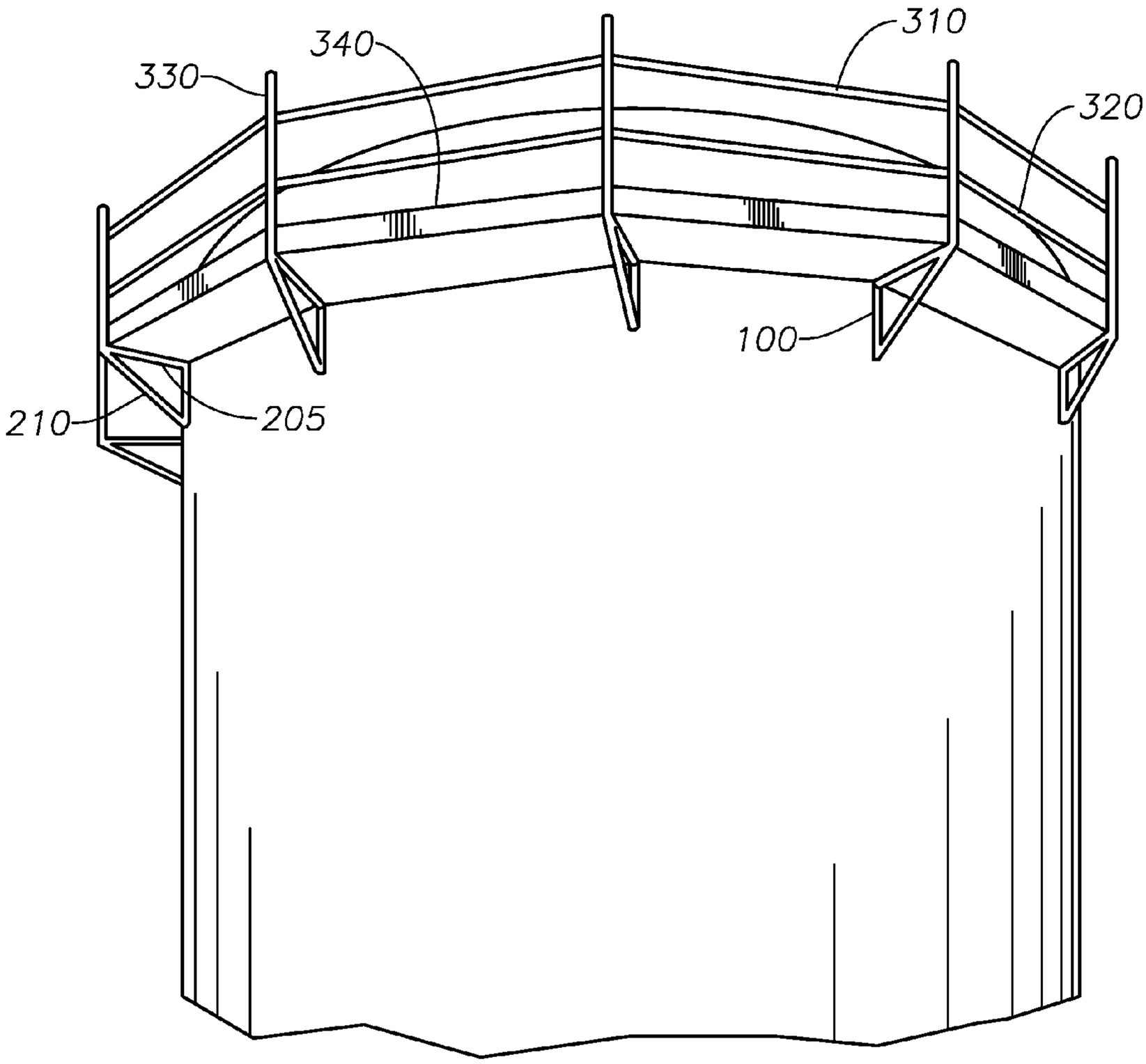


FIG. 4

SCAFFOLD BRACKET

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims benefit of U.S. provisional patent application Ser. No. 61/825,323, entitled SCAFFOLD BRACKET, filed May 20, 2013, which is incorporated herein by reference.

BACKGROUND

Field of the Invention

Implementations of various technologies described herein generally relate to a scaffold bracket.

Discussion of the Related Art

This section is intended to provide background information to facilitate a better understanding of various technologies described herein. As the section's title implies, this is a discussion of related art. That such art is related in no way implies that it is prior art. The related art may or may not be prior art. It should therefore be understood that the statements in this section are to be read in this light, and not as admissions of prior art.

During construction of a structure such as a building or a tank, a scaffolding system may be constructed which allows workers to operate on an elevated portion of the structure. In one scenario, the scaffolding system may be composed of a number of scaffolding components which are based on a ground surface and stacked on top of one another to build up the scaffolding system to a desired height. Components of the scaffolding system may include vertical members, horizontal members such as ledgers and guardrails, footings, decks or platforms, diagonal members, and scaffolding nodes for coupling two or more of the components of the scaffolding system to one another.

SUMMARY

Described herein are implementations of various technologies for a scaffold bracket. In one implementation, the scaffold bracket may include a mounting bracket having a first face and a second face opposite of the first face. The scaffold bracket may also include a first scaffolding node attached to the first face and configured to couple to a first member. The scaffold bracket may further include a second scaffolding node attached to the first face and configured to couple to a second member.

Described herein are implementations of various technologies for an apparatus, which may include a scaffold bracket. The scaffold bracket may include a mounting bracket having a first face and a second face opposite the first face. The scaffold bracket may also include a first scaffolding node attached to the first face and a second scaffolding node attached to the first face. The apparatus may also include a horizontal member coupled to the first scaffolding node. The apparatus may further include a diagonal member coupled to the second scaffolding node, where the horizontal member and the diagonal member are connected to one another at a node point.

Described herein are implementations of various technologies for a scaffolding system, which may include a plurality of scaffold brackets. Each scaffold bracket in the plurality of scaffold brackets may include a mounting bracket having a first face and a second face opposite the first face. Each scaffold bracket may also include a first scaffolding node attached to the first face and a second scaffolding node attached to the first face. The scaffolding system may also include a plurality of horizontal members, where each horizontal member is coupled to the first scaffolding node. The scaffolding system may further include a plurality of diagonal members, where each diagonal member is coupled to the second scaffolding node and to each horizontal member at a node point. The scaffolding system may additionally include a plurality of upright rails, each coupled to a node point, where the upright rails extend in an upward direction above the plurality of horizontal members and the plurality of diagonal members. In addition, the scaffolding system may include one or more horizontal rails coupled between the plurality of upright rails in a substantially horizontal direction.

Described herein are implementations of various technologies for a method for constructing a scaffold bracket, which may include cutting a portion of a first vertical scaffolding member substantially in half to form a first scaffolding node. The method may also include cutting a portion of a second vertical scaffolding member substantially in half to form a second scaffolding node. The method may further include coupling the first scaffolding node and the second scaffolding node to a first face of a mounting bracket. The method may additionally include coupling a prong and an offset spacer to a second face of the mounting bracket opposite the first face.

The above referenced summary section is provided to introduce a selection of concepts in a simplified form that are further described below in the detailed description section. The summary is not intended to be used to limit the scope of the claimed subject matter. Furthermore, the claimed subject matter is not limited to implementations that solve disadvantages noted in any part of this disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

Implementations of various techniques will hereafter be described with reference to the accompanying drawings. It should be understood, however, that the accompanying drawings illustrate various implementations described herein and are not meant to limit the scope of various techniques described herein.

FIG. **1.1** illustrates a view of a scaffold bracket for use with a scaffolding system in accordance with implementations of various techniques described herein.

FIG. **1.2** illustrates a flow diagram of a method for constructing a scaffold bracket in accordance with implementations of various technologies and techniques described herein.

FIG. **1.3** illustrates a vertical scaffolding member in connection with implementations of various techniques described herein.

FIG. **1.4** illustrates a portion of a vertical scaffolding member in connection with implementations of various techniques described herein.

FIG. **1.5** illustrates a portion of a vertical scaffolding member in connection with implementations of various techniques described herein.

FIG. **1.6** illustrates a view of a scaffold bracket for use with a scaffolding system in accordance with implementations of various techniques described herein.

FIG. **2** illustrates a view of the scaffold bracket used with a scaffolding system in accordance with implementations of various techniques described herein.

FIG. **3** illustrates a scaffolding system which uses a plurality of scaffold brackets in accordance with implementations of various techniques described herein.

FIG. **4** illustrates a scaffolding system which uses a plurality of scaffold brackets on an above-ground tank, in accordance with implementations of various techniques described herein.

DETAILED DESCRIPTION

The discussion below is directed to certain specific implementations. It is to be understood that the discussion below is for the purpose of enabling a person with ordinary skill in the art to make and use any subject matter defined now or later by the patent "claims" found in any issued patent herein.

It is specifically intended that the claims not be limited to the implementations and illustrations contained herein, but include modified forms of those implementations including portions of the implementations and combinations of elements of different implementations as come within the scope of the following claims.

Reference will now be made in detail to various implementations, examples of which are illustrated in the accompanying drawings and figures. In the following detailed description, numerous specific details are set forth in order to provide a thorough understanding of the present disclosure. However, it will be apparent to one of ordinary skill in the art that the present disclosure may be practiced without these specific details. In other instances, well-known methods, procedures, and components have not been described in detail so as not to obscure aspects of the embodiments.

It will also be understood that, although the terms first, second, etc. may be used herein to describe various elements, these elements should not be limited by these terms. These terms are used to distinguish one element from another. For example, a first object could be termed a second object, and, similarly, a second object could be termed a first object, without departing from the scope of the claims. The first object and the second object are both objects, respectively, but they are not to be considered the same object.

The terminology used in the description of the present disclosure herein is for the purpose of describing particular implementations and is not intended to be limiting of the present disclosure. As used in the description of the present disclosure and the appended claims, the singular forms "a," "an" and "the" are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will also be understood that the term "and/or" as used herein refers to and encompasses one or more possible combinations of one or more of the associated listed items. It will be further understood that the terms "includes" and/or "including," when used in this specification, specify the presence of stated features, integers, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, operations, elements, components and/or groups thereof.

As used herein, the terms "up" and "down"; "upper" and "lower"; "upwardly" and downwardly"; "below" and "above"; and other similar terms indicating relative positions above or below a given point or element may be used in connection with some implementations of various technologies described herein. However, when applied to equipment and methods for use in wells that are deviated or horizontal, or when applied to equipment and methods that when arranged in a well are in a deviated or horizontal orientation, such terms may refer to a left to right, right to left, or other relationships as appropriate.

It should also be noted that in the development of any such actual implementation, numerous decisions specific to circumstance may be made to achieve the developer's specific goals, such as compliance with system-related and business-related constraints, which will vary from one implementation to another. Moreover, it will be appreciated that such a development effort might be complex and time-consuming but would nevertheless be a routine undertaking for those of ordinary skill in the art having the benefit of this disclosure.

The terminology and phraseology used herein is solely used for descriptive purposes and should not be construed as limiting in scope. Language such as "having," "containing," or "involving," and variations thereof, is intended to be broad and encompass the subject matter listed thereafter, equivalents, and additional subject matter not recited.

Furthermore, the description and examples are presented solely for the purpose of illustrating the different embodiments, and should not be construed as a limitation to the scope and applicability. While any composition or structure may be described herein as having certain materials, it should be understood that the composition could optionally include two or more different materials. In addition, the composition or structure may also include some components other than the ones already cited. It should also be understood that throughout this specification, when a range is described as being useful, or suitable, or the like, it is intended that any value within the range, including the end points, is to be considered as having been stated. Furthermore, respective numerical values should be read once as modified by the term "about" (unless already expressly so modified) and then read again as not to be so modified unless otherwise stated in context. For example, "a range of from 1 to 10" is to be read as indicating a respective possible number along the continuum between about 1 and about 10. In other words, when a certain range is expressed, even if a few specific data points are explicitly identified or referred to within the range, or even when no data points are referred to within the range, it is to be understood that the inventors appreciate and understand that any data points within the range are to be considered to have been specified, and that the inventors have possession of the entire range and points within the range.

The following paragraphs provide a brief summary of various technologies and techniques directed at a scaffold bracket described herein.

In one implementation, the scaffold bracket may be configured to couple to a sheer wall of a structure, such as a storage tank, above ground storage tank, vessel, or any other steel, metal, or weld-capable structure known to those skilled in the art. The scaffold bracket may include a mounting bracket, a first scaffolding node, a second scaffolding node, a prong, and an offset spacer. The first scaffolding node and the second scaffolding node may be attached to a first face of the mounting bracket, and the prong and the offset spacer may be attached to a second face of the mounting bracket.

The scaffold bracket may couple to a wall bracket of the sheer wall via the prong. The offset spacer may contact the sheer wall, and may be used in conjunction with the prong to space the mounting bracket substantially equidistantly from the sheer wall. The first scaffolding node may be configured to couple to a first member of the scaffolding system, and the second scaffolding node may be configured to couple to a second member of the scaffolding system. The first scaffolding node and the second scaffolding node may each be a portion of a pin lock or any other coupling means known to those skilled in the art, where the portion may

include a substantially semicircular rosette portion coupled to a substantially semicircular, cylindrical tubing portion.

The scaffold bracket may be formed by cutting a portion of a vertical scaffolding member substantially in halves in a lengthwise direction to form the first scaffolding node and the second scaffolding node. The first scaffolding node and the second scaffolding node may then be coupled to the mounting bracket. A prong and an offset spacer may then be coupled to the mounting bracket.

In one implementation, the scaffold bracket may be used to form a knee-braced cantilevered support. Accordingly, a horizontal member may be coupled to the first scaffolding node via the rosette portion, and a diagonal member may be coupled to the second scaffolding node via the rosette portion. The horizontal member and/or the diagonal member may be engineered scaffolding members. In this manner, the scaffold bracket, the horizontal member, and the diagonal member may together form a knee-braced cantilevered support. The horizontal member and the diagonal member may be connected to one another at a node point. The node point may include a coupling means for coupling to other scaffolding components.

In another implementation, a scaffolding system may be formed using the scaffold bracket. The scaffolding system may include a plurality of scaffold brackets, where each scaffold bracket may be coupled to a horizontal member and a diagonal member, thereby forming a knee-braced cantilevered support. Each horizontal member may connect to a diagonal member at a node point, where the node point may include a means for coupling to an upright rail. The upright rail may be a vertical post having one or more coupling means positioned along the upright rail. Each combination of the scaffold bracket, the horizontal member, diagonal member, and the upright rail may be connected to at least one other such combination in the scaffolding system to allow workers to traverse along the wall. A handrail and/or a midrail may be connected between at least two upright rails. In addition, a deck may be placed on top of a plurality of horizontal members. The upright rail, the handrail, and/or the midrail may be engineered scaffolding members.

Various implementations described above will now be described in more detail with reference to FIGS. **1.1-4**.

Scaffold Bracket

Configuration

FIG. **1.1** illustrates a view of a scaffold bracket **100** for use with a scaffolding system in accordance with implementations of various techniques described herein. The scaffold bracket **100** may be configured to couple to a sheer wall (shown in FIGS. **2-3**) of a structure, such as a storage tank, above ground storage tank, vessel, or any other steel, metal, or weld-capable structure known to those skilled in the art.

The scaffold bracket **100** may include a mounting bracket **110**, a first scaffolding node **120**, a second scaffolding node **130**, a prong **140**, and an offset spacer **150**. The mounting bracket **110**, the first scaffolding node **120**, the second scaffolding node **130**, the prong **140**, and/or the offset spacer **150** may be composed of carbon steel, stainless steel, hot-dip galvanized steel, aluminum, or any other material known to those skilled in the art.

The mounting bracket **110** may be a metallic plate which includes a first face **111** and a second face **112**. The first face **111** and/or the second face **112** may be substantially flat. The first scaffolding node **120** and the second scaffolding node **130** may be attached to the first face **111**, and the prong **140** and the offset spacer **150** may be attached to the second face **112**, as described below. In one implementation, the first scaffolding node **120** and the second scaffolding node **130** may extend laterally from the first face **111**, and the prong **140** and the offset spacer **150** may extend laterally from the second face **112**. In a further implementation, the prong **140** may extend laterally from the second face **112** at a top end **102** of the mounting bracket **110**.

In one implementation, the scaffold bracket **100** may couple to the sheer wall (shown in FIGS. **2-3**) via a wall bracket **50**. The wall bracket **50** may extend laterally from the sheer wall, where the wall bracket **50** may be attached to the sheer wall via welding or any other means known to those skilled in the art. The scaffold bracket **100** may couple to the wall bracket **50** via the prong **140**. In such an implementation, the prong **140** may be a male connector and the wall bracket **50** may be a female connector designed to couple to one another via hooking, latching, attachment, or any other implementation known to those skilled in the art. Although the scaffold bracket **100** has been described as being coupled to the sheer wall via a wall bracket **50** and the prong **140**, it should be understood however that the scaffold bracket **100** may be coupled to the sheer wall via any other coupling means commonly known by persons of ordinary skill in the art.

For example, as shown in FIG. **1.1**, the wall bracket **50** may be a metallic plate formed into a U-shape and welded to the sheer wall, where the U-shape of the wall bracket **50** may form an opening for use in coupling to the prong **140**. Further, the prong **140** may take the form of a hook and may be inserted into the wall bracket **50** through the opening formed by the U-shape of the wall bracket **50**, thereby coupling the prong **140** to the wall bracket **50**.

Once the prong **140** is coupled to the wall bracket **50**, the scaffold bracket **100** may be disposed in a substantially vertical direction **101**, with the first face **111** facing outwardly and away from the sheer wall. In addition, the offset spacer **150** may contact the sheer wall, and may be used in conjunction with the prong **140** to space the mounting bracket **110** substantially equidistantly from the sheer wall. In one implementation, the prong **140** and the offset spacer **150** together may position the mounting bracket **110** to be substantially perpendicular to a ground surface. In such an implementation, the prong **140** and the offset spacer **150** may extend laterally from mounting bracket **110** at a substantially identical length. The offset spacer **150** may take any shape or size needed to space the mounting bracket **110** in conjunction with the prong **140**. In one implementation, the prong **140** and the offset spacer **150** may be substantially identical in size and shape, and may be arranged to mirror one another.

The first scaffolding node **120** may be configured to couple to a first member (not pictured) of the scaffolding system, and the second scaffolding node **130** may be configured to couple to a second member (not pictured) of the scaffolding system. The first scaffolding node **120** and/or the second scaffolding node **130** may be coupled to the first face **111** via welding or any other implementation known to those skilled in the art, as further described below. In one implementation, the first scaffolding node **120** and the second scaffolding node **130** may be substantially identical.

The first scaffolding node **120** and the second scaffolding node **130** may each be a portion of a pin lock or any other coupling means known to those skilled in the art. For example, as illustrated in FIG. **1.1**, the first scaffolding node **120** may be a portion of a pin lock that includes a substantially semicircular rosette portion **122** coupled to a substantially semicircular, cylindrical tubing portion **124**. The rosette portion **122** may be concentrically coupled to the

cylindrical tubing portion **124**, such that the cylindrical tubing portion **124** may be encircled by the rosette portion **122**.

Similarly, the second scaffolding node **130** may be a portion of a pin lock that includes a substantially semicircular rosette portion **132** coupled to a substantially semicircular, cylindrical tubing portion **134**. In addition, the rosette portion **132** may be concentrically coupled to the cylindrical tubing portion **134**, such that the cylindrical tubing portion **134** may be encircled by the rosette portion **132**. The rosette portions **122**, **132** may be coupled to their respective cylindrical tubing portions **124**, **134** via welding or any other implementation known to those skilled in the art, as further described below.

In one implementation, the rosette portions **122**, **132** may include a plurality of radially-arranged cut-outs used for coupling to the first member and the second member respectively. The cut-outs may be of one or more shapes and/or of one or more sizes. In addition, the cut-outs may be arranged along the rosette portions **122**, **132**, such that components, e.g., the first member and the second member, coupled to the rosette portions can be placed at varying angles with respect to the mounting bracket **110**, as described below.

Construction

FIG. **1.2** illustrates a flow diagram of a method **160** for constructing a scaffold bracket in accordance with implementations of various technologies and techniques described herein. It should be understood that while method **160** indicates a particular order of execution of operations, in some implementations, certain portions of the operations might be executed in a different order. The following description of method **160** is provided with reference to the scaffold bracket **100** of FIG. **1.1**.

At block **162**, the first scaffolding node **120** may be formed by cutting a portion of a vertical scaffolding member substantially in half in a lengthwise direction. The vertical scaffolding member may be a vertical post or any other implementation known to those skilled in the art. An example of a vertical scaffolding member **170** is shown in FIG. **1.3**. In one implementation, the vertical scaffolding member **170** may be a cylindrical tube **172** having one or more rosettes **174**, i.e., pin locks, positioned along the cylindrical tube **172**. The rosettes **174** may encircle the cylindrical tube **172**, and may be coupled to the cylindrical tube **172** via welding or any other means known to those skilled in the art. The portion of the vertical scaffolding member **170** to be cut substantially in half may include one rosette **174** and a portion of the cylindrical tube **172** extending from both a top and a bottom of the rosette **174**, as shown in FIG. **1.4**.

Once cut substantially in half, the first scaffolding node **120** may be formed, where the first scaffolding node **120** includes the substantially semicircular rosette portion **122** coupled to the substantially semicircular, cylindrical tubing portion **124**, as shown in FIG. **1.1**.

At block **164**, the second scaffolding node **130** may be formed by cutting a portion of a vertical scaffolding member substantially in half in a lengthwise direction. In one implementation, the vertical scaffolding member of block **164** may be similar or identical to the vertical scaffolding member of block **162**, such as the member **170** shown in FIG. **1.3**. Similar to block **162**, the portion of the vertical scaffolding member to be cut substantially in half may include one rosette and a portion of the cylindrical tube extending from both a top and a bottom of the rosette, as similarly shown in FIG. **1.4**.

Once cut substantially in half, the second scaffolding node **130** may be formed, where the second scaffolding node **130** includes the substantially semicircular rosette portion **132** coupled to the substantially semicircular, cylindrical tubing portion **134**, as shown in FIG. **1.1**.

In another implementation, the same vertical scaffolding member may be used to form the first scaffolding node **120** and the second scaffolding node **130** of blocks **162** and **164**. For example, a portion of a single vertical scaffolding member may be cut substantially in half, producing a first half and a second half. In such an example, the first half may be used to form the first scaffolding node **120**, and the second half may be used to form the second scaffolding node **130**. In a further implementation, a portion of the vertical scaffolding member **180** cut substantially in half may include a substantially semicircular first rosette portion **182**, a substantially semicircular second rosette portion **184**, and a substantially semicircular cylindrical tubing portion **186** extending between the two rosette portions, as shown in FIG. **1.5**. In such an implementation, once cut substantially in half, the first scaffolding node **120** may be formed at the first rosette portion **182** and the second scaffolding node **130** may be formed at the second rosette portion **184**, with the cylindrical tubing portion **186** coupled between the two nodes.

At block **166**, the first scaffolding node **120** and the second scaffolding node **130** may be coupled to the mounting bracket **110**. As described above, the scaffolding nodes **120**, **130** may be coupled to the first face **111** via welding or any other implementation known to those skilled in the art. In one implementation, the first scaffolding node **120** and the second scaffolding node **130** may be positioned on the first face **111**, such that the first scaffolding node **120** may be closer to the top end **102** of the mounting bracket **110**. The second scaffolding node **130** may be placed proximately below the first scaffolding node in a substantially identical configuration. In a further implementation, the first scaffolding node **120** and the second scaffolding node **130** may be substantially vertically aligned to one another along the mounting bracket **110**. In yet another implementation, the first scaffolding node **120** formed at the first rosette portion **182** and the second scaffolding node **130** formed at the second rosette portion **184** may be coupled to the mounting bracket **100** with the cylindrical tubing portion **186** coupled between the two nodes, as shown in FIG. **1.6**.

At block **168**, the prong **140** and the offset spacer **150** may be coupled to the mounting bracket **110**. As described above, the prong **140** and the offset spacer **150** may extend laterally from the second face **112**. In one implementation, the prong **140** and/or the offset spacer **150** may be coupled to the second face **112** via welding or any other implementation known to those skilled in the art. In another implementation, the prong **140** and/or the offset spacer **150** may be part of the metallic plate which forms the mounting bracket **110**, as described above.

Scaffolding System

Upon coupling the scaffold bracket **100** to the sheer wall of a structure, scaffolding components may be coupled to the scaffold bracket **100** to create a scaffolding system. The scaffolding components may include engineered scaffolding members, as they are known to those skilled in the art. Engineered scaffolding members may be designed to withstand a particular stress and/or weight, i.e., they may have undergone destructive testing for quality control purposes. In addition, engineered scaffolding members may be designed to conform to standards set forth by the Occupational Safety & Health Administration (OSHA). In one

implementation, the engineered scaffolding members may be cylindrical tubes composed of carbon steel, stainless steel, hot-dip galvanized steel, aluminum, or any other material known to those skilled in the art.

FIG. **2** illustrates a view of the scaffold bracket **100** used with a scaffolding system in accordance with implementations of various techniques described herein. As shown in FIG. **2**, the scaffold bracket **100** may be coupled to a wall **40** via the wall bracket **50** and the prong **140**, as described above. The scaffold bracket **100** may be spaced substantially equidistantly from the wall **40** due to the positioning of the prong **140** and the offset spacer **150** on the second face **112**.

In addition, horizontal member **205** may be coupled to the first scaffolding node **120** via the rosette portion **122**. Similarly, the diagonal member **210** may be coupled to the second scaffolding node **130** via the rosette portion **132**. In one implementation, the horizontal member **205** and/or the diagonal member **210** may be engineered scaffolding members as described above. The horizontal member **205** may be a horizontal brace or any other implementation known to those skilled in the art. The diagonal member **210** may be a diagonal brace or any other implementation known to those skilled in the art.

In one implementation, the horizontal member **205** may have an end with a slot used for coupling to the rosette portion **122**. The slot of the horizontal member **205** may align with a cut-out of the rosette portion **122**, allowing a wedge **220** to be disposed through the cut-out and the slot. Consequently, the horizontal member **205** and the rosette portion **122** may be coupled via frictional force. In one implementation, the wedge **220** may be hammered through the cut-out and the slot. In another implementation, the end having the slot may be pinched down relative to the rest of the horizontal member **205** in order to facilitate the use of the wedge **205** with the slot.

Similarly, the diagonal member **210** may have an end with a slot used for coupling to the rosette portion **132**. A wedge **230** may be similarly used to couple the diagonal member **210** and the rosette portion **132** via frictional force. The end of the diagonal member **210** having the slot may also be similarly pinched down. In one implementation, the cut-outs may be arranged along the rosette portions **122**, **132** such that horizontal member **205** and/or the diagonal member **210** can be placed at varying angles with respect to the mounting bracket **110**. In another implementation, other coupling means known to those skilled in the art may be used in place of the wedge **220** and/or the wedge **230**.

The scaffold bracket **100**, the horizontal member **205**, and the diagonal member **210** may together form a knee-braced cantilevered support. In one implementation, the horizontal member **205** and the diagonal member **210** may be coupled to each other via welding or any other coupling means known to those skilled in the art. In another implementation, the horizontal member **205** and the diagonal member **210** may be connected to one another at a node point (not shown). The node point may include a coupling means for coupling to other scaffolding components, as described below.

In one implementation, a plurality of scaffold brackets **100**, horizontal members **205**, and diagonal members **210** may be used with other scaffolding components to create a scaffolding system. Other scaffolding components may include engineered scaffolding members such as an upright rail **330**, a handrail **310**, and/or a midrail **320**, as described with respect to FIG. **3**.

FIG. **3** illustrates a scaffolding system **300** which uses a plurality of scaffold brackets **100** in accordance with implementations of various techniques described herein. As shown in FIG. **3**, each scaffold bracket **100** may be coupled to the wall **40** via a wall bracket **50** (not shown) and a prong **140** (not shown), as described above. In addition, each scaffold bracket **100** may be coupled to a horizontal member **205** and a diagonal member **210**, thereby forming a knee-braced cantilevered support.

Each horizontal member **205** may connect to a diagonal member **210** at a node point **302**, where the node point **302** may include a means for coupling to an upright rail **330**. In one implementation, the upright rail **330** may be inserted into the node point **302** and fastened using bolts or other implementations known to those skilled in the art. The upright rail **330** may vertically extend from the node point **302** in an upward direction. In another implementation, the upright rail **330** may be a vertical post having one or more coupling means positioned along the upright rail **330**. The coupling means may include a rosette, i.e., a pin lock, or other coupling implementations known to those skilled in the art.

In one implementation, a handrail **310** and/or a midrail **320** may be connected between at least two upright rails **330**. Each end of the handrail **310** may be coupled to the upright rails **330** via the coupling means positioned along the upright rails **330**. In one implementation, the ends of the handrail **310** may be coupled at or proximate to top portions of the upright rails **330**. The midrail **320** may be similarly connected between two upright rails **330**. In one implementation, ends of the midrail **320** may be coupled at or proximate to middle portions of the upright rails **330**. The handrail **310** and/or the midrail **320** may be a horizontal ledger or any other implementation known to those skilled in the art.

In addition, a deck **340** may be placed on top of a plurality of horizontal members **205**. The deck **340** may be composed of steel, aluminum, wood, plywood, or any other material known to those skilled in the art. In one implementation, the deck **340** may be any walking surface known to those in the art that may be installed on top of the horizontal members **205**. In another implementation, the handrail **310** and/or the midrail **320** may be designed to allow for a tie-off point for workers traversing along the deck **340**. In this manner, each combination of the scaffold bracket **100**, the horizontal member **205**, diagonal member **210**, and the upright rail **330** may be connected to at least one other such combination in the scaffolding system **300** along with the deck **340** to allow workers to traverse along the wall **40**.

FIG. **4** illustrates a scaffolding system **400** which uses a plurality of scaffold brackets **100** on an above-ground tank in accordance with implementations of various techniques described herein. As shown, a plurality of scaffold brackets **100**, horizontal members **205**, diagonal members **210**, upright rails **330**, handrails **310**, midrails **320**, and decks **340** may be used along the above-ground tank. In one implementation, the scaffolding system **400** may be used along an interior wall of the above-ground tank.

The implementations as disclosed above may allow construction of a more efficient scaffolding system. For instance, as shown in FIG. **4**, the scaffold bracket **100** may be attached near a top of an above-ground storage tank, allowing workers to perform duties needed near the top of the tank via the deck **340**, without the need of additional scaffold brackets, horizontal members, and diagonal members below the scaffold bracket **100** to provide support. Furthermore, the scaffold brackets **100** may be coupled to the welded brackets in a non-permanent manner, thus allowing easier installation or removal. In addition, the top

handrail and the midrail may be used to provide a stable, solid support for workers traversing along the deck. Further, components of the scaffold bracket and the scaffolding system may be composed of engineered scaffolding members.

While the foregoing is directed to implementations of various techniques described herein, other and further implementations may be devised without departing from the basic scope thereof, which may be determined by the claims that follow. Although the subject matter has been described in language specific to structural features and/or methodological acts, it is to be understood that the subject matter defined in the appended claims is not limited to the specific features or acts described above. Rather, the specific features and acts described above are disclosed as example forms of implementing the claims.

What is claimed is:

1. A scaffold bracket, comprising:

a mounting bracket, wherein the mounting bracket comprises a plate having a first face and a second face opposite of the first face, and wherein the first face and the second face are each substantially flat;

a first scaffolding node coupled to the first face and configured to couple to a first member; and

a second scaffolding node coupled to the first face and configured to couple to a second member, wherein at least one of the first scaffolding node and the second scaffolding node comprises a cylindrical tubing portion coupled to a substantially semicircular rosette portion, and wherein the cylindrical tubing portion and the substantially semicircular rosette portion are coupled to the substantially flat first face.

2. The scaffold bracket of claim **1**, wherein the mounting bracket further comprises:

a prong extending laterally from the second face and configured to couple to a wall bracket attached to a wall; and

an offset spacer extending laterally from the second face, wherein the prong and the offset spacer are configured to extend laterally from the second face at substantially the same length.

3. The scaffold bracket of claim **1**, wherein the first scaffolding node comprises the substantially semicircular rosette portion, and wherein the substantially semicircular rosette portion comprises one or more cut-outs configured to couple to the first member using a wedge.

4. The scaffold bracket of claim **1**, wherein the second scaffolding node comprises the substantially semicircular rosette portion, and wherein the substantially semicircular rosette portion comprises one or more cut-outs configured to couple to the second member using a wedge.

5. The scaffold bracket of claim **1**, wherein the first scaffolding node and the second scaffolding node are substantially vertically aligned.

6. The scaffold bracket of claim **1**, wherein the first scaffolding node and the second scaffolding node are attached to the first face using welding.

7. A scaffold bracket, comprising:

a mounting bracket, wherein the mounting bracket comprises a plate having a first face and a second face opposite of the first face, and wherein the first face and the second face are each substantially flat;

a first scaffolding node coupled to the first face and configured to couple to a first member;

a second scaffolding node coupled to the first face and configured to couple to a second member, wherein at least one of the first scaffolding node and the second scaffolding node comprises a cylindrical tubing portion coupled to a substantially semicircular rosette portion, and wherein the cylindrical tubing portion and the substantially semicircular rosette portion are coupled to the substantially flat first face;

a prong extending laterally from the second face and configured to couple to a wall; and

an offset spacer extending laterally from the second face and configured to contact the wall.

8. The scaffold bracket of claim **7**, wherein the prong and the offset spacer are configured to extend laterally from the second face at substantially the same length.

9. The scaffold bracket of claim **7**, wherein the prong is configured to couple to a wall bracket coupled the wall.

* * * * *